

# COMPLIANT GRINDING WHEEL

## ABSTRACT OF THE DISCLOSURE

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A pre-planarization module configured to perform a long range planarization operation is provided. The pre-planarization module includes a semiconductor substrate support configured to rotate about a first axis. The pre-planarization module also includes an annular ring having a first side with a compliant layer affixed thereto. The  
10 second side of the compliant layer is affixed to a planarizing surface. The annular ring is configured to move perpendicular and parallel to a plane associated with the substrate support. Additionally, the annular ring is configured to rotate about a second axis, where the second axis is offset from the first axis. The substrate support and the annular ring rotate in the same direction. A method for performing a planarization process and a  
15 substrate grinding device are also provided.